



Independent Review

Neuroscience of Literacy Professional Learning Module Project (Project)
for the
State of Vermont
Agency of Education



**Submitted to the
State of Vermont, Agency of Digital Services
April 20, 2023**

Prepared by:

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1.0 Executive Summary

For all Information Technology (IT) activities over \$1 million, State of Vermont (State) statute (or at the discretion of the Chief Information Officer [CIO]) requires an Independent Review by the Office of the CIO before the project can begin. The State Agency of Digital Services (ADS) engaged BerryDunn to perform an Independent Review of the of Literacy Professional Learning Module Project (Project). This Independent Review began on March 6, 2023, and the presentation of findings is tentatively planned for the week of April 10, 2023.

The State Agency of Education (AOE) is seeking to develop an online, self-paced professional learning training that provides information about the neuroscience of literacy. This professional learning product will be designed so that it can stand alone as an introductory module to provide educators with foundational information in the form of learning units regarding the neuroscience behind language acquisition and literacy skills development.

In April 2022, VT AOE released a Request for Proposal (RFP) to establish contracts with one or more vendors that can provide an online/web-based Professional Learning Module to Vermont educators. In response to the RFP, VT AOE received three (3) compliant bid proposals prior to the close of the competitive bid process on May 9, 2022. The State selected Public Consulting Group (PCG).

While conducting the Independent Review, BerryDunn identified two risks, with neither being of high impact and/or high likelihood of occurrence. These risks are listed in detail in Attachment 2 – Risk Register.

1.1 Cost Summary

Table 1.1 includes a summary of the costs. More detail can be found in Section 5: Acquisition Cost Assessment and Section 10: Impact Analysis on Net Operating Costs.

Table 0.1: Cost Summary

IT Activity Life Cycle	Cost and Funding Source
Total Life Cycle Costs (Five Years)	\$558,582.73
Total Implementation Costs	\$172,805.61
New Annual Operating Costs (Five Years)	\$558,582.73
Current Annual Operating Costs (Five Years)	\$0
Difference Between Current and New Operating Costs	\$558,582.73
Funding Source(s) and Percentage Breakdown of Multiple Sources	100% Federal Funded

1.2 Disposition of Independent Review Deliverables

Table 1.2 includes a summary of the Independent Review findings as elaborated later in the report.

Table 0.2: Independent Review Deliverables

Deliverable	Highlights From the Independent Review Include Explanations of Any Significant Concerns
Acquisition Cost Assessment	The proposed solution does not include a software cost or cost for other State labor. The one-time acquisition cost assessment does include BerryDunn's independent review services totaling \$24,500. Most of the costs for this project are implementation services totaling \$33,569.61 and State labor costs totaling \$88,400.
Technology Architecture and Standards Review	Course content delivered on the Pepper solution uses the OpenEdX platform. The OpenEdX platform allows for capture of course data, including collaboration time, time spent on tasks, and how teachers and staff respond to various assessments. The solution allows for reports to be run on data documented throughout the system, such as individual progress reports, badges or certificates, and module transcripts. Reports can be visualized using data extracts or dashboards. In BerryDunn's review of the draft contract, PCG states it's proposed solution is able to fulfill all security requirements identified by the State, including for database security, fraud detection, encryption, role and permission-based access, and vulnerability assessment testing. In the draft contract, PCG confirms the solution will be

Deliverable	Highlights From the Independent Review Include Explanations of Any Significant Concerns
	able to meet the State's expectations regarding disaster recovery, including appropriate data retention, recovery models, back-up hosting, contingency and continuity planning, and backup procedures. It is BerryDunn's belief that the vendor's proposed services will be adequate to meet the State's needs.
Implementation Plan Assessment	As identified in BerryDunn's document review and confirmed during its interview session, PCG mentioned it has experience successfully working with state education and IT departments to conduct projects of similar scope within timeframes similar to the schedule provided above. Based on interview responses from Project Leadership, State educators are largely eager to adopt embrace the solution, as it will provide easy access to educational materials that will enhance their knowledge on topics pertinent to their work. In its proposal, PCG commits to providing an Implementation Master Schedule within 30 days of contract execution, which it will update on a weekly basis until go-live.
Cost-Benefit Analysis	While the State did not identify an anticipated cost savings estimate from the tangible benefits, BerryDunn's opinion is that the intangible benefits outweigh the costs given the solution will provide an easily accessible and convenient approach for the State to provide a solution that will comply with Act 28 requirements.
Analysis of Alternatives	A team of business representatives from the State evaluated and scored various aspects of the vendors' proposals, with the total score comprising Quality of Bidder's Experience and Capability (40%), Responsiveness to specifications (40%), Costs (20%), Acceptance of State Terms and Conditions (Pass/Fail), and Adherence to Mandatory Bidding Requirements (Pass/Fail). All three reviewers agreed PCG was the preferred choice over the other vendors. The evaluation team agreed, based on ratings, demonstrations, and received BAFO, on recommending PCG provide the services requested. BerryDunn believes the competitive bid process was a sound approach to understanding the State's options for procuring the required statewide assessment services.
Impact Analysis on Net Operating Costs	BerryDunn conducted an impact analysis on net operating costs using the costs validated and verified in acquisition cost assessment and cost benefit analysis. Based on the costs in the draft contract, there is a net annual increase in operational costs, with no break-even point.
Security Assessment	BerryDunn learned through interviews that the solution platform provider has its own information security controls within an

Deliverable	Highlights From the Independent Review Include Explanations of Any Significant Concerns
	<p>Amazon Web Services environment. During BerryDunn's interview, PCG provided a high-level overview of its disaster recovery process, which can involve a shutdown of the solution and/or development of resolution matter depending on the scope of the situation. As stated in the draft contract, PCG will provide a detailed disaster recovery plan to the State as part of the Implementation phase, which will include its approach to breach notification and incident response. PCG's regularly conduct system audits of the OpenEdX platform to identify information security risks. The solution will use strong encryption for any circumstance in which encryption is required. PCG maintains a SOC 2 Type II certification through an independent auditing body, which attests to the rigor of the infrastructure, engineering practices, and operational protocols specifically as they apply to security, privacy, and confidentiality.</p>

1.3 Risks Identified as High Impact and/or Having High Likelihood of Occurrence

No high impact or High likelihood risks were identified during this independent review. A complete Risk Register is included in Attachment 2.

1.4 Other Key Issues

No other key issues were identified by BerryDunn.

1.5 Recommendation

Based on the assessment as provided in this report, and assuming that AOE and ADS execute the mitigation strategies as defined in Attachment 2, BerryDunn recommends the State proceed with this project and vendor.

Independent Reviewer Certification

I certify that this Independent Review Report is an independent and unbiased assessment of the proposed solution's acquisition costs, technical architecture, implementation plan, cost-benefit analysis, and impact on net operating costs, based on the information made available to BerryDunn by the State.

DocuSigned by:
Charlie Leadbetter
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4/20/2023

Independent Reviewer Signature

Date

1.6 Report Acceptance

The electronic signature below represents the acceptance of this document as the final completed Independent Review Report.

DocuSigned by:
Sharon Nelson
E44680F18EAE444...

4/20/2023

State of Vermont Chief Information Officer

Date

2.0 Scope of This Independent Review

2.1 In Scope

The scope of this document is fulfilling the requirements of Vermont Statute, Title 3, Chapter 56, §3303(d).

The Independent Review Report includes:

- An acquisition cost assessment
- A technology architecture review and standards review
- An implementation plan assessment
- A cost analysis and model for benefit analysis
- An analysis of alternatives
- An impact analysis on net operating costs for the agency carrying out the activity
- A security assessment

This Independent Review used the following schedule:

- Week of March 6, 2023: Conduct a project planning meeting, develop a participation memo, schedule interviews, and review documentation
- Week of March 13, 2023: Conduct the first round of interviews and document initial findings, risks, and issues
- Weeks of March 20 and March 27, 2023: Conduct additional research and follow-up interviews and provide a preliminary Independent Review Report to the State
- Week of April 3, 2023: Collect feedback, revise and resubmit the Independent Review Report
- Week of April 10, 2023: Present the Independent Review Report findings and facilitate a project closeout meeting

2.2 Out of Scope

No items from Vermont Statute, Title 3, Chapter 56, §3303(d) are out of scope for this Independent Review.

3.0 Sources of Information

3.1 Independent Review Participants

Table 3.1 includes a list of stakeholders who participated in fact-finding meetings and/or communications.

Table 0.1: Independent Review Participants

Name	Organization and Role	Participation Topic(s)
Jess Decarolis	AOE, Project Sponsor	<ul style="list-style-type: none"> • General Project Information • Implementation Plan Review • Acquisition Cost • Risk Assessment
Meg Porcella	AOE, Business Lead	<ul style="list-style-type: none"> • General Project Information • Implementation Plan Review • Acquisition Cost • Risk Assessment
John Hunt	ADS, Enterprise Architect	<ul style="list-style-type: none"> • General Project Information • Implementation Plan Review • Cost-Benefit Analysis • Risk Assessment
Spenser Lanning	ADS, Security Analyst	<ul style="list-style-type: none"> • General Project Information • Implementation Plan Review • Cost-Benefit Analysis • Risk Assessment
Tracey Delphia	ADS, IT Director	<ul style="list-style-type: none"> • Project Information • Implementation Plan Review • Cost-Benefit Analysis • Risk Assessment
Hallie Rubalcaba	ADS, Project Manager	<ul style="list-style-type: none"> • Project Information • Implementation Plan Review • Acquisition Cost • Risk Assessment

Name	Organization and Role	Participation Topic(s)
Blythe Armitage	PCG, Project Manager	<ul style="list-style-type: none"> Project Information Implementation Plan Review Risk Assessment
Peter Capomacchio	PCG, Technical Lead	<ul style="list-style-type: none"> Project Information Implementation Plan Review Risk Assessment
Gerry Stefhon	PCG, Associate Manager	<ul style="list-style-type: none"> Project Information Implementation Plan Review Risk Assessment

3.2 Independent Review Documentation

Table 3.2 below includes a list of the documentation utilized to compile this Independent Review.

Table 0.2: Independent Review Documentation

Document Name	Description	Source
VT IR SOW RFP for AOE LPL - FINAL	State of Vermont Request for Proposal	BerryDunn SharePoint site here .
ProjectCharter for AOE Literacy Professional Learning - Act 28	Project Charter	BerryDunn SharePoint site here .
AOE LPL Act 28 RFP Evaluation Template	Completed Bidder Evaluation Template	AOE SharePoint site here .
IT-PCG Contract Draft 12.20.22	Standard Contract for Technology Services	AOE SharePoint Site here .
Content Solution PCG Contract Template 8-2022 ESSER 12.20.22_PCG Review 1.11.23	State of Vermont Standard Contract Services for Vermont Agency of Education	AOE SharePoint site here .
IT Activity Business Case & Cost Analysis (IT ABC Form)	IT ABC Form	AOE SharePoint site here .
PCG BAFO_VT Neuroscience Literacy_9.9.22	PCG BAFO	AOE SharePoint site here .

Document Name	Description	Source
AOE LPL ACT28 Justification Memo	Contract Award Recommendation Memorandum	AOE SharePoint Site here.
04.05.23 - IT-PCG Contract Draft updated	Updated Draft Contract with PCG	AOE SharePoint Site here.
GovWin Opportunity #20180279	Publicly available documentation of Washington Office of the Superintendent of Public Instruction's acquisition of Paraeducator Professional Development Learning Modules.	GovWin.com
GovWin Opportunity #157710	Publicly available documentation of Hawaii Department of Education's acquisition of a Learning Management System for Learning Programs.	GovWin.com
GovWin Opportunity #82182	Publicly available documentation of Louisiana Department of Education's acquisition of a Learning Management System.	GovWin.com
GovWin Opportunity #104434	Publicly available documentation of Arizona Department of Education's acquisition of a Learning Management System.	GovWin.com

4.0 Project Information

4.1 Historical Background

AOE will be providing professional learning as part of a statewide initiative, as described by Act 28 of 2021, to improve literacy outcomes for students and in furtherance of Act 173.

AOE is seeking to develop an online, self-paced professional learning training that provides information about the neuroscience of literacy—how the brain and language develop—that is appropriate for all educators. This professional learning product should be designed so that it can stand alone as an introductory course to provide educators with foundational information regarding the neuroscience behind language acquisition and literacy skills development.

AOE needs content developed that can either be accessible to educators via a new online platform or hosted on a platform that AOE has access to. In January 2023, VT AOE released an RFP to establish contracts with one or more vendors that can provide an online/web-based Professional Learning Module to Vermont educators. In response to the RFP, VT AOE received three (3) compliant bid proposals prior to the close of the competitive bid process on May 9, 2022. AOE evaluation team scored the proposals based on the following criteria:

- Quality of Bidder's Experience
- Responsiveness to Specifications
- Costs
- Acceptance of State Terms and Conditions
- Adherence to Mandatory Bidding Requirements

The State selected Public Consulting Group LLC (PCG) and requested PCG to prepare and submit a Best and Final Offer (BAFO) in response to the Agency of Education Neuroscience of Literacy Professional Learning Module.

4.2 Project Goals

The State's project objectives include:

- Meet Act 28 requirements of providing learning that is not currently available
- Implement an autonomous online professional learning product hosted on a platform that can be managed by a vendor or content that is delivered and hosted by the AOE
- Introduce courses on foundational information regarding the neuroscience behind language acquisition and literacy skills development (e.g., self-paced, online course)
 - Proof of completion of module
 - Module should be stackable, extendable, connected
- Reduce expense of in-person professional learning

- Improve equity in training access
- Enhance the sustainability of training

The State's desired outcome is to improve literacy outcomes for students in furtherance of Act 173.

4.3 Project Scope

The State's Project scope is comprised of the following requirements:

- Business requirements
- Project management and deliverables
- RFP
- Content for literacy module
- Creation of literacy module from created content
 - Self-paced
 - Provides proof of completion
 - Extendable/stackable
- Hosting of literacy module (vendor or on state solution)
 - Online delivery
 - Ability to incorporate additional modules
- Integrations with existing systems

Out-of-scope items include future modules.

4.4 Major Deliverables

Table 4.1 provides a summary of the deliverables, descriptions, and frequency, as articulated in the draft contract with PCG.

Table 4.1: Project Deliverables and Frequency Proposed by the Vendor

Deliverable	Description	Frequency
Requirements Discovery Sessions (Grooming)	Requirements in the form of user stories are at a high level. Requirements will need to be refined and defined to the appropriate level of detail. Acceptance criteria shall be defined for all user stories. User stories and acceptance criteria must be captured and managed.	Initially to help ensure scope of project is well understood; ongoing at the beginning of each release and/or sprint as needed

Deliverable	Description	Frequency
Prioritized Product Backlog	Backlog of all user stories that are prioritized according to their business value. This is an ongoing exercise through the project life cycle that is typically done before each sprint.	Ongoing; typically done before each sprint
Release and Sprint Schedule	Based on the prioritized backlog, a release and sprint schedule should be created that is incorporated into the Implementation Master Schedule (IMS).	Initially after discovery and prioritized backlog are created; updated as needed throughout
Deliverable Expectation Document (DED)	Criteria that establish the acceptance and rejection criteria of each project deliverable and who is responsible for approval of the deliverable.	Once per deliverable
Deliverable Acceptance Form (DAF)	Obtain sign-off at the completion of each project deliverable as defined by the DED.	Once per deliverable
Change Requests	Formal document that outlines any changes to the contract scope, schedule, budget, and resources.	As needed; completed by PM of the requesting party
Risk and Issue Log	A log of all risks and issues (opened and closed) that could (risk) or are (issue) impacting the project. Risks should be outlined by their impact and their potential to occur. All risks and issues should have an owner and a clearly defined response strategy.	Weekly (minimum); log is kept updated by State PM, but Contractor PM is expected to participate and provide risk and issue information from Contractor perspective
Action Items	A log of open and resolved/completed action items. Each action item should identify an owner and date needed for completion.	As needed; completed by PM of responsible party for the completion of the Action Item
Decision Log	A log of all decisions made over the course of the project. Decisions should have a date and name of decision-maker.	Weekly; decisions logged by the PM of party making decision
Test Plans	A description of the testing approach, participants, sequence of testing, and testing preparations.	Once
Test Cases and Results	The specific test cases and/or scripts to be tested and the testing results. Test cases must tie back to the project requirements (to help ensure each one has been met).	Create once, then update with results

Deliverable	Description	Frequency
IMS	The IMS outlines how the project will go live and will include a detailed plan for the exact events that need to occur, assigned to the resources that need to do them, and the time frame for when they need to get done.	Within 30 days of contract execution; updated weekly
Project Status Report	Provides an update on the project health, accomplishments, upcoming tasks, risks, and significant issues. The Status Report and the project health color shall be developed in consultation with the State business lead and State PM.	Weekly
Meeting Agenda/ Minutes	All meetings will have an agenda and minutes. The minutes shall contain items discussed and the risks, issues, action items, and decisions made during the meeting. Minute criteria shall be transcribed over to the main logs.	Per occurrence; 24 hours prior to meeting for agendas and 24 hours after meeting for minutes

4.5 Project Phases and Schedule

Table 4.2 is a summary of Project phases/milestones, dates, and tasks planned, as articulated in the draft contract with PCG.

Table 4.2: Project Phases/Milestones, Dates, and Tasks

Project Phase/Milestone	Date(s)	Phase Description
Initiation	05/01/2023 – 05/15/2023	<ul style="list-style-type: none"> • Planning • Preparation of project management planning documentation • Contract Execution • Project Charter • Project Charter Sign-Off • Kick-off meeting
Requirements Gathering (Elaboration)	05/15/2023 – 06/01/2023	Site Configurations <ol style="list-style-type: none"> 1. Login Process 2. User Roles 3. Registration Process 4. Menu Configurations 5. Site Configurations
Execution	06/01/2023 – 06/30/2023	System Configurations <ol style="list-style-type: none"> 1. Update Standard Offering with AOE Configurations

Project Phase/Milestone	Date(s)	Phase Description
		System Configurations Complete
Validation	07/01/2023 – 07/30/2023	AOE System Overview <ol style="list-style-type: none"> 1. AOE User Acceptance Testing 2. AOE System Review Sign-off
Implementation	05/15/2023 – 6/1/2023	Trainings <ol style="list-style-type: none"> 1. Schedule AOE Trainings 2. AOE Training- State User 3. AOE Training- Field Training 4. Schedule Field Training 5. Communicate Trainings to Field 6. File Training 7. Complete Training

5.0 Acquisition Cost Assessment

Table 5.1 includes a summary of acquisition costs reported to BerryDunn during this Independent Review.

Table 0.1: Acquisition Cost Assessment

Acquisition Costs	Cost	Comments
Implementation Services	\$33,569.61	Based on draft contract implementation costs
Software	\$0	
ADS EPMO Project Oversight	\$4,224	48 hours at \$88 per hour
ADS EPMO Project Manager	\$62,400	480 hours at \$130 per hour
ADS EPMO Business Analyst (BA)	\$26,000	200 hours at \$130 per hour
ADS Enterprise Architect (EA)	\$5,104	20 hours at \$88 per hour
ADS Security Staff	\$880	
ADS IT Labor	\$16,128	192 hours at \$84 per hour
Other State Labor	\$0	
Independent Review	\$24,500	This cost was obtained from the BerryDunn Independent Review contract
Total One-Time Acquisition Costs	\$172,805.61	

1. Cost Validation: Describe how you validated the acquisition costs.

BerryDunn validated acquisition costs during documentation review, an interview with ADS' project manager, and follow-up communications with ADS via email.

2. Cost Comparison: How do the acquisition costs of the proposed solution compare to what others have paid for similar solutions? Will the State be paying more, less, or about the same?

BerryDunn researched GovWin—a government contracting intelligence platform from Deltek—to research what other state government agencies have paid for similar solutions and services. In Table 5.2 below, BerryDunn compared the anticipated cost for statewide assessments to peer states' agencies.

Table 5.2: Cost Assessment for Peer State Agencies

State Agency	Cost	Vendor
Washington Office of the Superintendent of Public Instruction	\$249,863	PCG
Hawaii Department of Education	\$748,900.22	Blackboard, Inc.

State Agency	Cost	Vendor
Louisiana Department of Education	\$237,400	Blackboard, Inc.
Arizona Department of Education	\$279,555	Blackboard, Inc.

Given potential differences in the scope and complexity of learning modules being developed and procured by other states, this analysis is intended to be directional in nature and should not serve as a basis for what Vermont should pay.

- 3. Cost Assessment:** Are the acquisition costs valid and appropriate in your professional opinion? List any concerns or issues with the costs.

In addition to our market research, we based our cost assessment on the work we have performed in other states during the planning and implementation of similar solutions.

Based on BerryDunn's analysis experience, we believe the State is paying comparable costs to similar solutions and services in the market.

6.0 Technology Architecture and Standards Review

1. **State's IT Strategic Plan:** Describe how the proposed solution aligns with each of the State's IT Strategic Principles:

a. **Assess how well the technology solution aligns with the business direction**

Table 6.1: Alignment of the Pepper Solution with State IT Strategic Principles

Key Desired Outcome	Description
Customer Service Improvement	The Pepper solution will provide State educators with access to professional learning opportunities relating to literacy skills acquisition, including the science of phonemic awareness, phonics, fluency, vocabulary, and reading comprehension.
Compliance	The Pepper solution will fulfill AOE's requirement to provide State educators with supporting materials to improve literacy outcomes across the State.
Equity	The Pepper solution will provide all State educators across all grade levels access to modules along with additional tools and resources. By providing this access, the State will be better equipped to focus on accountability of educational attainment results and support continuous improvement. Educators will have access to all materials regardless of location or time of day.

b. **Assess how well the technology solution maximizes benefits for the State**

Primary benefits to the State provided by the solution will be those articulated in the IT ABC Form and the RFP:

- **Customer Service Improvement:** The State does not currently have a solution to provide content to educators across the State. The solution will provide educators with access to content regarding the neuroscience of development, literacy, and skill acquisition.
- **Risk Reduction:** The State will be able to provide educators with content that can be accessed at their convenience and can have additional content added over time.
- **Equity:** Given the solution's content is accessible regardless of location or time, educators will not be required to travel and/or request a substitute in order to access educational content.

c. **Assess how well the information architecture of the technology solution adheres to the principle of Information is an Asset**

Course content delivered on the Pepper solution uses the OpenEdX platform. The OpenEdX platform allows for capture of course data, including collaboration time, time spent on tasks, and how teachers and staff respond to various assessments.

The solution allows for reports to be run on data documented throughout the system,

such as individual progress reports, badges or certificates, and module transcripts. Reports can be visualized using data extracts or dashboards.

d. Assess if the technology solution will optimize process

The solution offered by PCG has the advantages of being able to provide educators will access to learning materials that the State anticipates will improve their ability to educate all Vermont students by having greater knowledge and awareness of educational science topics.

e. Assess how well the technology solution supports resilience-driven security

In BerryDunn's review of the draft contract, PCG states its proposed solution is able to fulfill all security requirements identified by the State, including for database security, fraud detection, encryption, role- and permission-based access, and vulnerability assessment testing.

2. Sustainability: Comment on the sustainability of the solution's technical architecture (i.e., is it sustainable?).

The OpenEdX platform is a secure cloud-hosted SaaS platform that is scalable and stable, with well-documented Application Programming Interfaces (APIs) to be easily integrated with other systems as determined by the State. The underlying framework provides for the flexibility to incorporate new assessment modules and educational materials that may be needed by the State over time.

3. How does the solution comply with the ADS Strategic Goals enumerated in the ADS Strategic Plan of 2022-2026?

The solution complies with the following ADS strategic goals, enumerated in the ADS Strategic Plan of 2022-2026:

- **Vermont experience:** Deploying new systems by utilizing cloud-based offerings to reduce our infrastructure footprint and total cost of ownership.
 - This will be achieved through a modern cloud solution, with customer self-service functionality and implementation of a solution that is anticipated by the State to require minimal operational support from ADS post go-live.

4. Compliance with the Section 508 Amendment to the Rehabilitation Act of 1973, as amended in 1998: Comment on the solution's compliance with accessibility standards as outlined in this amendment. Reference: <http://www.section508.gov/content/learn>.

It is BerryDunn's understanding that PCG is in agreement with Section 508 as included in the draft contract and anticipates being able to comply with all applicable Section 508 requirements.

5. Disaster Recovery: What is your assessment of the proposed solution's disaster recovery plan? Do you think it is adequate? How might it be improved? Are there specific actions that you would recommend to improve the plan?

In the draft contract, PCG confirms the solution will be able to meet the State’s expectations regarding disaster recovery, including appropriate data retention, recovery models, backup hosting, contingency and continuity planning, and backup procedures. During BerryDunn’s interview, PCG provided a high-level overview of its disaster recovery process, which can involve a shutdown of the solution and/or development of resolution matter depending on the scope of the situation. As stated in the draft contract, PCG will provide a detailed disaster recovery plan to the State as part of the Implementation phase. Therefore, BerryDunn is unable to provide a detailed assessment of PCG’s disaster recovery plan at this time. However, the draft contract contains Recovery Point Objective (RPO)/Recovery Time Objective (RTO) Expectations, as included in Table 6.2 below.

Table 6.2: RPO/RTO Expectations

Event	RTO SLA	RPO SLA	Service-Level Credit (SLC)	SLC Calculation	Example Duration
Host Failure	10 min.	0 min.	10% fixed monthly fee per incident per day	10 min.	0 min.
Data Center Failure	2 hrs.	15 mins	10% fixed monthly fee per incident per day	Data Center Failure	2 hrs.
DR From D2D Backup	6 – 8 hrs.	24 hrs.	10% fixed monthly fee per incident per day	DR From D2D Backup	6 – 8 hrs.

- 6. Data Retention:** Describe the relevant data retention needs and how they will be satisfied for or by the proposed solution.

In interviews with State IT resources and PCG, BerryDunn learned the solution will not use or store confidential information and will only require limited sensitive data (names and email addresses). The solution collects information on users, including activity progress, course list enrollment, time on task, collaboration time, and other usage analytics. In the draft contract, PCG has stated it will be able to successfully fulfill the State’s data retention requirements, as PCG has successfully provided similar solutions to peer state educational departments.

It is BerryDunn’s assessment that the State’s data retention needs will be met for this proposed solution.

- 7. SLA:** What are the post-implementation services and service levels required by the State? Is the vendor-proposed SLA adequate to meet these needs, in your judgment?

Table 6.3: SLA with Description and Vendor Proposed Service Response

Support Service	Description	Vendor-Proposed Service Response
Severity 1 - Critical	The solution is unavailable to a large portion of the users, or a major and vital feature of the system is unavailable to a large portion of the product's users, adversely affecting the ability to use the core product. There is no work-around.	This pertains to the software working or not working for all—or a vast majority of—users attempting to access the system. For instance, printing could be considered a vital feature; however, if one user has a problem printing a report, this would not constitute a Sev-1 incident.
Severity 2 - Urgent	The system is unavailable to a large portion of the product's users, or a major and vital feature of the system is unavailable to a large portion of the product's users, adversely affecting the ability to use the core product. There is no work-around.	The critical difference between a Sev-1 and a Sev-2 incident hinges on whether the client is able or unable to do work.
Severity 3 - Essential	The system is unavailable to a large portion of the product's users, or a major and vital feature of the system is unavailable to a large portion of the product's users, adversely affecting the ability to use the core product. There is no work-around.	This is used for a problem that needs to be fixed and is essential to system operation; however, it does not impede the client from working and making meaningful progress in accomplishing primary tasks. The difference between Sev-2 and Sev-3 is the relative importance of the feature impacted.
Severity 4 - Important	The system is unavailable to a large portion of the product's users, or a major and vital feature of the system is unavailable to a large portion of the product's users, adversely affecting the ability to use the core product. There is a work-around.	This is used for a problem that needs to be fixed and is essential to system operation; however, it does not impede the client from working and making meaningful progress in accomplishing primary tasks. The difference between Sev-3 and Sev-4 is the existence of a work-around solution.

It is BerryDunn's belief that the vendor's proposed services will be adequate to meet the State's needs.

- 8. System Integration:** Is the data export reporting capability of the proposed solution consumable by the State? What data is exchanged and what systems (State and non-State) will the solution integrate/interface with?

During stakeholder interviews with PCG and State IT resources, BerryDunn identified that the systems that will need to integrate with the solution have not yet been agreed upon and scoped, with this effort planned to occur during discovery (after the contract has been executed). For more information, see Risk #1 in Attachment 2.

7.0 Assessment of Implementation Plan

1. The reality of the implementation timetable.

The preliminary implementation plan from the draft contract is included in Table 7.1.

Table 7.1: Project Implementation Phases and Timeline

Task Name	Start	Finish
Initiation	Mon 5/1/23	Mon 5/15/23
Kick-Off Meeting	Mon 5/1/23	
Planning		
Preparation of PM Planning Documentation		
Contract Execution		
Project Charter		
Project Charter Sign Off	Mon 5/15/23	Mon 5/15/23
Requirements Gathering (Elaboration)	Mon 5/15/23	Thu 6/1/23
Site Configurations	Mon 5/15/23	Thu 6/1/23
Login Process		
User Roles		
Registration Process		
Menu Configurations		
Site Configurations	Thu 6/1/23	Thu 6/1/23
Training & Communication	Mon 5/15/23	Thu 6/1/23
Develop Training Plan		
Develop Training Outline		
Develop Communication Plan		
Develop Communication Outline		
Training & Communications	Thu 6/1/23	Thu 6/1/23
Execution	Thu 6/1/23	Fri 6/30/23
System Configurations	Thu 6/1/23	Fri 6/30/23
Update Standard Offering with AOE Configurations		
System Configurations Complete	Fri 6/30/23	Fri 6/30/23
Validation	Sat 7/1/23	Sat 7/8/23
AOE System Overview		
AOE User Acceptance Testing		
AOE System Review Sign-Off	Sat 7/8/23	Sat 7/8/23
Trainings	Sun 7/30/23	Sun 7/30/23
Schedule AOE Trainings		
AOE Training - State User		

AOE Training - Field User		
Schedule Field Trainings		
Communicate Trainings to Field		
Field Training		
Completed Training	Sun 7/30/23	Sun 7/30/23
Implementation	Tue 8/1/23	Tue 8/1/23
System Go-Live		
Implementation Complete	Tue 8/1/23	Tue 8/1/23
Annual Support and Maintenance Begins	Tue 8/1/23	Tue 8/1/23

As identified in BerryDunn’s document review and confirmed during its interview session, PCG mentioned it has experience successfully working with state education and IT departments to conduct projects of similar scope within time frames similar to the schedule provided above.

2. Readiness of impacted divisions/departments to participate in this solution/project (consider current culture, staff buy-in, organizational changes needed, and leadership readiness).

Based on interview responses from Project leadership, State educators are largely eager to adopt the solution, as it will provide easy access to educational materials that will enhance their knowledge on topics pertinent to their work. For information regarding the adoption of the solution by individual school districts and/or educators, please see Risk #2 in Attachment 2.

3. Do the milestones and deliverables proposed by the vendor provide enough detail to hold the vendor accountable for meeting the business needs in these areas?

a. Project Management

In its proposal, PCG describes developing/following/maintaining/monitoring project management planning documentation, implementation approach, training plans, performance tracking, work breakdown structure, project schedule, performance management, and reporting measures. PCG describes enough of the methods/strategies/formats that will be used for these items to provide enough detail to hold it accountable for meeting the business needs in the area of project management.

b. Training

In its proposal, PCG mentions as part of its Implementation phase that PCG will develop training plans and other training materials as part of the Requirements

Gathering phase. In its training plan, PCG has committed to conducting a mass email communication campaign, conducting informational webinars, and providing training materials including recordings for State educators to access.

c. Testing

In its proposal, PCG describes its approach to verifying technology readiness, which includes acceptance testing by the State following inspection. After PCG provides written notice to the State that it has completed a phase of the Solution, the State shall, in accordance with the Formal Acceptance Criteria agreed upon by the parties, and with full cooperation and assistance from PCG, conduct all such inspections and tests of the phase as the State may deem necessary or appropriate. This will help to determine whether any defects exist in the phase as implemented and whether the phase as installed materially complies with all of the Installation Test Specifications and phase specifications as set forth in the requirements and detailed IMS.

d. Design

In its proposal, PCG details the structure of the content that is provided in each module as well as the lessons within each module. This includes a breakdown of the key takeaways for educators, rationale, objectives and topics, and the academic sources of this information where applicable. PCG's proposal also discussed how solution end users (State educators) will navigate through the solution to access the modules, run reports on learning progress, and screenshots from similar configurations of the solution to help demonstrate the user experience and how the content might appear. This is largely an out-of-the-box solution.

e. Conversion (If Applicable)

BerryDunn learned during its IT interview session that conversion efforts are not applicable to the scope of this project or Independent Review, as the solution is not replacing any legacy systems at this time.

f. Implementation Planning

In its draft contract, PCG commits to conducting a go-live readiness assessment as part of its Implementation phase.

g. Implementation

In its proposal, PCG commits to providing an Implementation Master Schedule within 30 days of contract execution, which it will update on a weekly basis until go-live. The Implementation Master Schedule will contain the effort hours and resources assigned to complete each task during implementation.

- 4. Does the State have a resource lined up to be the project manager on the project? If so, does this person possess the skills and experience to be successful in this role, in your judgment? Please explain.**

Based on our interactions with the State project manager during this Independent Review, BerryDunn has confidence that the individual has the skills and experience necessary for the role.

8.0 Cost Analysis and Model for Benefit Analysis

- 1. Analysis Description:** Provide a narrative summary of the cost-benefit analysis conducted. Be sure to indicate how the costs were independently validated.

To conduct the cost-benefit analysis, BerryDunn used the draft contract and the most recent version of the IT ABC Form, both of which the State provided.

BerryDunn validated each cost through the following methods:

- Annual costs for PCG's services were verified in the draft contract.
- The costs for ADS project oversight, project management, EA, and security staff were verified in the most recent version of the IT ABC Form.

A detailed breakdown of these costs can be found in Attachment 1 – Life Cycle Cost-Benefit Analysis.

- 2. Assumptions:** List any assumptions made in your analysis.

This is a five-year life cycle project, beginning in April 2023.

- 3. Funding:** Provide the funding source(s). If multiple sources, indicate the percentage of each source for both acquisition costs and ongoing operational costs over the duration of the system/service life cycle.

The State will receive 100% federal funding, leaving 0% to be paid with State funding.

- 4. Tangible Costs and Benefits:** Provide a list and description of the tangible costs and benefits of this project. It is “tangible” if it has a direct impact on implementation or operating costs (an increase = a tangible cost, and a decrease = a tangible benefit). The cost of software licenses is an example of a tangible cost. Projected annual operating cost savings is an example of a tangible benefit.

Tangible Costs

Licenses, Support, and Maintenance – These combined fees total \$95,219.28 for FY 2024; \$95,219.28 for FY 2025; \$95,219.28 for FY 2026, and \$95,219.28 for FY 2027 for a total of \$380,877.10 over the first five years of the five-year life cycle.

Professional Services – Implementation services consist of \$24,500 for FY 2023 and \$33,569.61 for FY 2024 for a total of \$58,070.61 over the first five years of the five-year life cycle.

ADS Services – ADS services include project oversight, project management, enterprise architecture, and security analysis. These costs total \$114,736.

Tangible Benefits

AOE reported in the IT ABC Form as well as in the Project leadership interview session with BerryDunn that this investment will allow for the agency to be in compliance with Act 28 of

2021, which requires it to provide content educators online access to help improve student literacy outcomes.

- 5. Intangible Costs and Benefits:** Provide a list and descriptions of the intangible costs and benefits. Its “intangible” if it has a positive or negative impact but is not cost related. Examples: Customer service is expected to improve (intangible benefit) or employee morale is expected to decline (intangible cost).

Based on documentation review and interviews with the State, BerryDunn identified the following intangible benefits:

- **Customer Service** – By adopting an online approach to providing materials to educators, the State anticipates being able to reduce the cost of in-person education efforts.
- **Risk Reduction** – The use of an easily accessible learning material portal will provide the State with a long-term repository for training content, as State educators will have a single location in which future materials can be developed and distributed.

- 6. Costs vs. Benefits:** Do the benefits of this project (consider both tangible and intangible) outweigh the costs in your opinion? Please elaborate on your response.

While the State did not identify an anticipated cost savings estimate from the tangible benefits, BerryDunn’s opinion is that the intangible benefits outweigh the costs given the solution will provide an easily accessible and convenient approach for the State to provide a solution that will comply with Act 28 requirements.

- 7. IT ABC Form Review:** Review the IT ABC Form (Business Case/Cost Analysis) created by the Business for this project. Is the information consistent with your Independent Review and analysis? If not, please describe. Is the life cycle that was used appropriate for the technology being proposed? If not, please explain.

The State used cost estimates for annual costs in the IT ABC Form approved on November 18, 2021. Through contract negotiations with PCG, the State identified more accurate costs, so BerryDunn recommends that AOE and ADS update the IT ABC Form and reroute for approval.

9.0 Analysis of Alternatives

1. Provide a brief analysis of alternative solutions that were deemed financially unfeasible.
2. Provide a brief analysis of alternative technical solutions that were deemed unsustainable.
3. Provide a brief analysis of alternative technical solutions where the costs for operations and maintenance were unfeasible.

A team of business representatives from the State evaluated and scored various aspects of the vendors' proposals, with the total score comprising Quality of Bidder's Experience and Capability (40%), Responsiveness to Specifications (40%), Costs (20%), Acceptance of State Terms and Conditions (Pass/Fail), and Adherence to Mandatory Bidding Requirements (Pass/Fail). Table 9.1 below shows the evaluated vendors' weighted scores with totals.

Table 9.1: Summary of Proposal Scores

Proposal Section	AIM Institute	Designing Digitally	PCG
Quality of Bidder's Experience and Capability	160.00	80.00	186.67
Responsiveness to Specifications	146.67	80.00	173.33
Costs	60.00	66.67	50.00
Acceptance of State Terms and Conditions	Pass	Pass	Pass
Adherence to Mandatory Bidding Requirements	Pass	Pass	Pass
Total	366.67	226.67	410.00

Based on the scores and the State's evaluation, the mutual agreement was that one finalist (PCG) would be invited to provide demonstrations of its proposed solution to the reviewing committee. A solution demonstration was held on August 3, 2022. Reviewers discussed pros and cons of the demonstration and written proposals on August 12, 2022. As a result of the discussion, a Best and Final Offer was requested from the apparent successful vendor by September 9, 2022, with requests made for additional cost information for statewide enterprise licensing pricing.

All three reviewers agreed PCG was the preferred choice over the other vendors. The evaluation team agreed, based on ratings, demonstrations, and the received BAFO, on recommending that PCG provide the services requested. The evaluation team identified the following reasons as to why it identified PCG as the preferred vendor:

- The State's previous work with PCG gave the review team confidence that the project could be implemented as proposed.
- Extensive expertise providing literacy professional development: PCG demonstrated and documented a superior approach to providing literacy content aligned to the science of reading and the underpinnings of neurological development for literacy acquisition. PCG's proposal also includes an online professional learning module and associated platform to host online training, which would support the State's goal to improve literacy outcomes.
- Price point: PCG provided a detailed Neuroscience of Literacy Professional Learning Module.
- Module Hosting Solution: PCG provided a hosted solution that includes Professional Learning Communities, Content Management Repository, PD Planner, Transcript Management, Evaluation Surveys, and Reporting. The other vendors did not provide a vendor-hosted solution.

BerryDunn believes the competitive bid process (e.g., proposal evaluations, vendor demonstrations, and BAFOs) was a sound approach to understanding the State's options for procuring the required statewide assessment services.

10.0 Impact on Analysis of Net Operating Costs

1. Insert a table to illustrate the Net Operating Cost Impact.

Table 10.1, on the following page, illustrates the impact on net operating costs over five years.

Table 10.1: Life Cycle Costs by Year

Impact on Operating Costs	FY23	FY24	FY25	FY26	FY27	Five-Year Totals
Professional Services (Non-Software Costs)						
Current Costs	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Projected Costs	\$0.00	\$33,569.61	\$0.00	\$0.00	\$0.00	\$33,569.61
Maintenance, Support, Hardware, Hosting, and License Costs						
Current Costs	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Projected Costs	\$0.00	\$95,219.28	\$95,219.28	\$95,219.28	\$95,219.28	\$380,877.12
Other Costs (State Labor)						
Current Costs	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Projected Costs	\$28,684.00	\$90,252.00	\$8,400.00	\$8,400.00	\$8,400.00	\$144,136.00
Baseline Current Cost	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Baseline Projected Costs	\$28,684.00	\$219,040.89	\$103,619.28	\$103,619.28	\$103,619.28	\$558,582.73
Cumulative Current Costs	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Cumulative Projected Costs	\$28,684.00	\$247,724.89	\$351,344.17	\$454,963.45	\$558,582.73	\$558,582.73
Net Impact on Professional Services	\$0.00	(\$33,569.61)	\$0.00	\$0.00	\$0.00	(\$33,569.61)
Net Impact on Software Acquisition, Maintenance, Support, Licenses Costs, and Other	(\$28,684.00)	(\$185,471.28)	(\$103,619.28)	(\$103,619.28)	(\$103,619.28)	(\$525,013.12)

Impact on Operating Costs	FY23	FY24	FY25	FY26	FY27	Five-Year Totals
Net Impact on Operating Costs:	(\$28,684.00)	(\$219,040.89)	(\$103,619.28)	(\$103,619.28)	(\$103,619.28)	(\$558,582.73)

2. Provide a narrative summary of the analysis conducted and include a list of any assumptions.

BerryDunn conducted an impact analysis on net operating costs using the costs validated and verified in the acquisition cost assessment and cost-benefit analysis.

The following calculations were used in performing the analysis:

- The projected costs for FY 2024 Professional Services (Non-Software Costs) includes:
 - PCG's services: \$33,569.61
 - Independent Review: \$24,500
- The projected costs for FY 2024 Maintenance, Support, and Licenses Costs includes:
 - License fees: \$95,219.28
- The projected costs for FY 2025 Maintenance, Support, and Licenses Costs includes:
 - License fees: \$95,219.28
- The projected costs for FY 2026 Maintenance, Support, and Licenses Costs includes:
 - License fees: \$95,219.28
- The projected costs for FY 2027 Maintenance, Support, and Licenses Costs includes:
 - License fees: \$95,219.28
- The projected FY 2023 cost for Other Costs (State Labor) includes:
 - ADS EPMO Project Oversight: \$1,056
 - ADS EPMO Project Management: \$15,600
 - ADS EPMO BA: \$6,500
 - ADS EA: \$1,276
 - ADS Security Staff: \$220
 - Other ADS Labor: \$4,032
- The projected FY 2024 cost for Other Costs (State Labor) includes:
 - ADS EPMO Project Oversight: \$3,168
 - ADS EPMO Project Management: \$46,800
 - ADS EPMO BA: \$19,500
 - ADS EA: \$1,276
 - ADS Security Staff: \$220
 - Other ADS Labor: \$4,032

- State IT Labor to Operate and Maintain the Solution: \$4,200
- The projected FY 2025 cost for Other Costs (State Labor) includes:
 - State IT Labor to Operate and Maintain the Solution: \$8,400
- The projected FY 2026 cost for Other Costs (State Labor) includes:
 - State IT Labor to Operate and Maintain the Solution: \$8,400
- The projected FY 2027 cost for Other Costs (State Labor) includes:
 - State IT Labor to Operate and Maintain the Solution: \$8,400

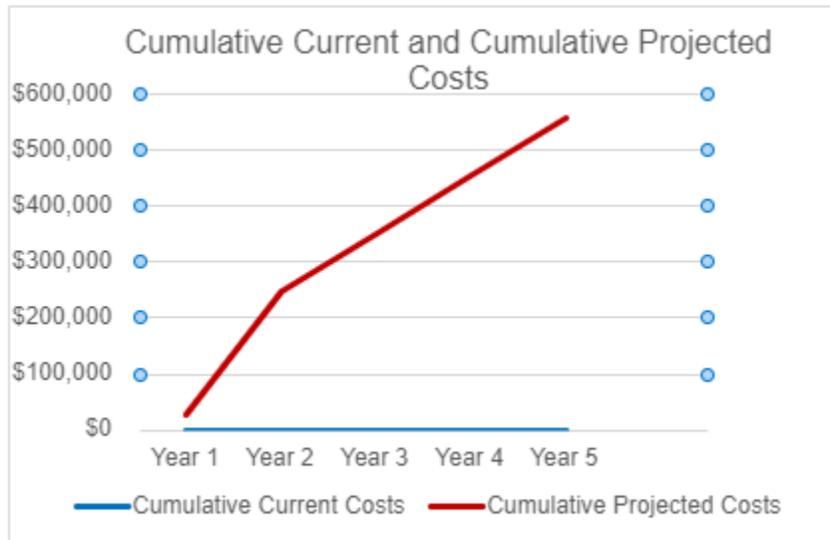
3. Explain any net operating increases that will be covered by federal funding. Will this funding cover the entire life cycle? If not, please provide the breakouts by year.

One hundred percent of all net operating increases will be covered by federal funding.

4. What is the break-even point for this IT activity (considering implementation and ongoing operating costs)?

Based on the costs in the draft contract, there is a net annual increase in operational costs, with no break-even point.

Figure 9.1: Cumulative Current and Cumulative Projected Costs



11.0 Security Assessment

1. Will the new system have its own information security controls, rely on the State's controls, or incorporate both?

The solution platform provider has its own information security controls within an Amazon Web Services environment, to include the following:

- Input validation
- Output encoding
- Authentication and password management
- Configurable role- and permission-based access controls
- Unaccounted error monitoring and logging
- Data access restrictions
- Communication security
- Database security controls
- Fraud detection

2. What method does the system use for data classification?

In the draft contract, PCG agreed to work with the State to provide documentation regarding the vendor's internal data policies, data management, access controls, and other related data classification approaches. PCG states in the draft contract that it will meet the requirements of both NIST 800-171 and the Family Educational Rights and Privacy Act (FERPA). During BerryDunn's interview session, PCG stated it has worked with similar state educational agencies to successfully classify and protect data similar to what will be used by the solution.

3. What is the vendor's breach notification and incident response process?

During BerryDunn's interview, PCG provided a high-level overview of its disaster recovery process, which can involve a shutdown of the solution and/or development of resolution matter depending on the scope of the situation. As stated in the draft contract, PCG will provide a detailed disaster recovery plan to the State as part of the Implementation phase, which will include its approach to breach notification and incident response.

As discussed in interviews and confirmed in Section 6.2 of the draft contract, should any security breach occur, PCG will notify all customers impacted as soon as feasible and within a period of not more than 24 hours upon PCG's acknowledgment of the breach. PCG will immediately determine the nature and extent of the security breach, contain the incident, recover records, shut down the breached system, and either revoke access and/or correct security gaps. PCG shall report to the State details on the breach, including a written report

if requested by the State. If applicable, PCG will notify the Office of the Attorney General and/or Vermont Department of Financial Regulation within 14 business days of the discovery of the breach.

4. Does the vendor have a risk management program that specifically addresses information security risks?

PCG regularly conducts system audits of the OpenEdX platform to identify information security risks. These efforts include conducting:

- Third-party pen testing
- Database security testing
- Fraud detection
- Incident response testing
- Disaster recovery testing

5. What encryption controls/technologies does the system use to protect data at rest and in transit?

The solution will use strong encryption for any circumstance in which encryption is required.

6. What format does the vendor use for continuous vulnerability management, what process is used for remediation, and how do they report vulnerabilities to customers?

PCG maintains a SOC 2 Type II certification through an independent auditing body, which attests to the rigor of the infrastructure, engineering practices, and operational protocols specifically as they apply to security, privacy, and confidentiality.

As part of its proposed approach to continuous vulnerability management, PCG's system audits of the OpenEdX platform will include vulnerability assessments to help identify possible platform security weaknesses. Section 6.6 in the draft contract states, "The Contractor shall run quarterly vulnerability assessments and promptly report results to the State. Contractor shall remediate all critical issues within 90 days, all medium issues within 120 days and low issues within 180 days. Contractor shall obtain written State approval for any exceptions. Once remediation is complete, Contractor shall re-perform the test."

12.0 Risk Assessment and Risk Register

This section describes the process for development of a Risk Register, including the following activities:

- A. *Ask the Independent Review participants to provide a list of the risks that they have identified and their strategies for addressing those risks.*
- B. *Independently validate the risk information provided by the State and/or vendor and assess their risk strategies.*
- C. *Identify any additional risks.*
- D. *Ask the Business to respond to your identified risks, as well as provide strategies to address them.*
- E. *Assess the risks strategies provided by the Business for the additional risks you identified.*
- F. *Document all this information in a Risk Register and label it Attachment 2. The Risk Register should include the following:*
 - **Source of Risk:** *Project, Proposed Solution, Vendor, or Other*
 - **Risk Description:** *Provide a description of what the risk entails*
 - **Risk Ratings to Indicate:** *Likelihood and probability of risk occurrence; impact should risk occur; and overall risk rating (high, medium, or low priority)*
 - **State's Planned Risk Strategy:** *Avoid, Mitigate, Transfer, or Accept*
 - **State's Planned Risk Response:** *Describe what the State plans to do (if anything) to address the risk*
 - **Timing of Risk Response:** *Describe the planned timing for carrying out the risk response (e.g., prior to the start of the project, during the Planning Phase, prior to implementation, etc.)*
 - **Reviewer's Assessment of State's Planned Response:** *Indicate if the planned response is adequate/appropriate in your judgment, and if not, what you would recommend*

Additional Comments on Risks:

The risks identified during this Independent Review can be found in Attachment 2 – Risk Register.

Attachment 1 – Life Cycle Cost-Benefit Analysis

Table A.1, on the following page, reflects a five-year life cycle cost analysis.

Table A-1: Life Cycle Cost-Benefit Analysis

Description	Implementation		Maintenance	Maintenance	Maintenance	Maintenance	
Fiscal Year	FY23	FY24	FY24	FY25	FY26	FY27	Total
Implementation Services		\$33,569.61					\$33,569.61
Licenses							\$0.00
Other Professional Services							
Maintenance and Support			\$95,219.28	\$95,219.28	\$95,219.28	\$95,219.28	\$380,877.12
Other Contracted Professional Services for Implementation							\$0.00
State Labor Costs							
ADS EPMO Project Oversight	\$1,056.00	\$3,168.00					\$4,224.00
ADS EPMO Project Manager	\$15,600.00	\$46,800.00					\$62,400.00
ADS EPMO BA	\$6,500.00	\$19,500.00					\$26,000.00
ADS EA	\$1,276.00	\$3,828.00					\$5,104.00
ADS Security Staff	\$220.00	\$660.00					\$880.00
Other ADS Labor	\$4,032.00	\$12,096.00					\$16,128.00
State IT Labor to Operate and			\$4,200.00	\$8,400.00	\$8,400.00	\$8,400.00	\$29,400.00

Description	Implementation		Maintenance	Maintenance	Maintenance	Maintenance	
Maintain the Solution							
Totals							
Implementation Costs and State Labor Costs	\$28,684.00	\$119,621.61					\$148,305.61
BerryDunn IR	\$24,500.00	\$0.00					\$24,500.00
Total Implementation	\$53,184.00	\$119,621.61					\$172,805.61
Total Life Cycle Operating Costs**			\$99,419.28	\$103,619.28	\$103,619.28	\$103,619.28	\$410,277.12
Total Life Cycle Costs to be Paid With Federal Funds	\$53,184.00	\$119,621.61	\$99,419.28	\$103,619.28	\$103,619.28	\$103,619.28	\$583,082.73

Attachment 2 – Risk Register

Data Element	Description
Risk #	Sequential number assigned to a risk to be used when referring to the risk.
Risk Likelihood/Probability, Impact, Overall Rating	Two-value indicator of the potential impact of the risk if it were to occur, along with an indicator of the probability of the risk occurring. Assigned values are High, Medium, or Low.
Source of Risk	Source of the risk, which might be interviews with the State, project documentation review, or vendor interview.
Risk Description	Brief narrative description of the identified risk.
State's Planned Risk Strategy	Strategy the State plans to take to address the risk. Assigned values are Avoid, Mitigate, Transfer, or Accept.
State's Planned Risk Response	Risk response the State plans to adopt based on discussions between State staff and BerryDunn reviewers.
Timing of Risk Response	Planned timing for carrying out the risk response, which might be prior to contract execution or subsequent to contract execution.
Reviewer's Assessment of State's Planned Response	Indication of whether BerryDunn reviewers feel the planned response is adequate and appropriate, and recommendations if not.

Risk Rating Criteria			
Scale	Low	Medium	High
Impact	Condition does not impact quality and is unlikely to impact achievement of project objectives. -OR- Condition might be mitigated through adjustment in effort to avoid impacts to project objectives.	Condition might be mitigated through reduction or deferral of baseline scope in order to avoid impact to quality and/or moving date of key milestone. -OR- Condition might be mitigated by focused corrective actions in order to help ensure achievement of project objectives.	Condition might require acceptance of agreed-upon modifications in order to avoid impact(s) to key project objectives. -OR- Conditions might introduce risk to project scope, quality of work products, system solution and/or user experience.
Likelihood	1 – 39%	40 – 89%	90 – 100%

Risk #:	Risk Likelihood/Probability:	Risk Impact:	Overall Risk Rating:
1	Low	Low	Low
Source of Risk: Interview with IT			
Risk Description: An analysis of which systems, if any, will need to be integrated with the Pepper solution is not planned to be completed until the discovery phase. The Project schedule or budget does not account for developing integrations with the Pepper solution, since an analysis on necessary integrations has not yet been conducted. The State plans to identify any necessary integrations during the discovery phase. If necessary integrations are identified during the discovery phase, this would likely extend the timeline and cost of the Project.			
State's Planned Risk Strategy: Accept			
State's Planned Risk Response: There is no requirement in the contract that integrations will actually occur, and the solution only needs to have the capability to integrate (no mention of actually integrating to anything at this time). The state does not currently have plans to integrate, which is why integration planning and conversations have not taken place to date.			
Timing of Risk Response: If through discovery and/or implementation efforts the need to integrate should arise, conversation would take place at that time, such as with any agile implementation and appropriate change management processes would follow that effort.			
Reviewer's Assessment of State's Planned Response: The State's response is acceptable.			

Risk #:	Risk Likelihood/Probability:	Risk Impact:	Overall Risk Rating:
2	Low	Low	Low
Source of Risk: Interview with Project Leadership			
Risk Description: State educators might not adopt the Pepper solution. State educators, which will be the end-users of the Pepper solution, will not be required to adopt the solution. If the Pepper solution is not widely adopted, this would limit the benefits of the Project and diminish the return on the investment. While the Project has a training plan for solution end-users, BerryDunn is not aware of an Organizational Change Management plan for how the State/PCG will build awareness and desire with stakeholders to help drive adoption of the solution.			
State's Planned Risk Strategy: Accept			
State's Planned Risk Response: Act 28 directed the SEA to develop and make available Literacy PD modules to supervisory unions/districts and their staff. (This project is NOT an elective initiative). Act 28 It did not require that the State or SEA measure ROI, it did not change statute to authorize the State/SEA to require participation and or use of these modules. This would require both a statutory and regulatory change. As articulated in the interview - building awareness and desire has not been a problem, as we have been communicating/building awareness about these forthcoming modules since September 2021 and are consistently fielding requests for updates from the Legislature, the Literacy Council, membership organizations and the field. Therefore, should this risk remain intact for the purpose of this IR, it should be clearly noted that due to ACT 28, SOV must "accept" this risk as a solution, whether adopted or not, as this project/initiative is required.			
Timing of Risk Response: Not applicable			

Reviewer's Assessment of State's Planned Response: The State's response is acceptable.